

of the Acad. Nat. Sci. of Philada. Referred to Drs. Wilson and Townsend, and Mr. E. Harris.

October 23d.

Vice President MORTON in the Chair.

A letter was read from Mr. Caspar Parkinson, dated Philadelphia, Oct. 23d, 1849, offering for sale a collection of Marine Shells.

Dr. Leidy made the following observations on the characters and intimate structure of the odoriferous glands of the Invertebrata.

Nature has supplied most or all animals with some means of defence or protection, through which their destruction is rendered limited. The character of such means varies exceedingly, some are encased in hard armour, some are endowed with great muscular strength, some with great rapidity of movement, others trust to their minuteness, some to their color, others feign death, many are furnished with formidable instruments, such as teeth, claws, aculei, &c.; others are supplied with organs which emit an odour so offensive that an aggressor is frequently compelled to leave what otherwise would have been its victim, &c. It is to the last mentioned organs to which I at present wish to direct, for a few moments, the attention of the members: to the organs denominated odoriferous glands of animals. Bodies of this, or of a homologous character, are possessed by nearly all animals, but they are not in all used as a means of defence. They give origin to the odour which appears to be more or less peculiar to each species of animal, and which probably is in some way connected with the sexual instinct. The scent bag of the *Moschus moschiferus* is the homologue of the glandulæ odoriferæ *Tysoni* of the human prepuce; the tegumentary mucous glands of mollusca, of annelides, of fishes, the tegumentary glands of reptiles, the perspiratory and sebaceous glands of birds, and of mammals, the odoriferous glands of insects, the anal sacs of carnivora, &c., are all probably of a homologous character.

Although varying in the degree of their complexity in different animals, and in the character of their secretion, yet the essential structure is the same throughout. Consisting of tubes or follicles of basement membrane, their complexity depends upon their greater or lesser length, their being simple or compound, straight or more or less convoluted, and isolated or aggregated, in connection with the mode of supplying to them their nutritive fluid.

On the interior these cavities or tubes are covered with a single layer of nucleolo-nucleated organic cells, the true elaborators or manufacturers of the secreted matters of the glandular bodies.

The secreted matter varies exceedingly in its properties in different animals: in odor being found from that of the perspiratory fluid of man, through a great variety of shades, to that most powerful and odious of all odours, the secretion of the anal glands of the *Mephitis Americana*; in consistence from a semi-fluid state to the gaseous fluid of the *Brachinus crepitans*, &c. It is this which constitutes the material contained within the organic cells intermediate to the cell wall and the nucleus.

The cell wall and nucleus are the agents in connection with the organic force which produce or elaborate the contained matter. And, indeed, this is the ultimate

fact of all organization; for all the innumerable objects of living nature, with such variety of form, composition, and color, from the simplest to the most complex: from the vibrionic filament to the noble oak, from the bodo, or monas, up to man, are the result of a force in connection with an amorphous vesicle, the organic cell-wall, with the contained nucleus. Wonderful, indeed, is it that the human mind at length has been enabled to penetrate so deeply into the mysteries of nature as to discover the starting point of life, the stile at which an invisible intangible cause operates in the production of all those beings we call organized. From this digression I return once more to the consideration of the odoriferous glands. In many of the higher animals, the structure of these have been carefully investigated, but not to the same extent in the lower animals.

In Hemipterous insects these bodies are situated within the posterior part of the metathorax or anterior part of the abdomen, and consist of one or two, more or less long and convoluted coeca, which open exteriorly usually between the coxæ of the middle and posterior legs.

In the carnivorous Coleoptera, they are situated in the posterior part of the abdomen, on each side of the rectum, and usually open exteriorly upon the membrane, connecting the inferior and superior plate of the last abdominal segment on each side of the anal aperture. They generally consist of a number of follicles, which converge to one or more ducts, which join the neck of a reservoir for containing the secreted fluid. A number of these are figured by Dufour in the *Annales des Sciences Naturelles* for 1826.

In the genus of Myriapoda, *Julus*, the odoriferous glands are placed upon each side of the body, every segment which has a double pair of legs possessing a pair of the glands, commencing anteriorly with the sixth segment, excepting the head, and terminating posteriorly with the penultimate segment. As the number of segments of the animal varies with its age, so will also the number of the odoriferous glands. The adult *Julus marginatus* has usually fifty pairs, the *Julus maximus*, from New Grenada, S. A., has fifty-eight pairs, &c.

The orifices of these glands opening exteriorly, correspond to a row of minute black dots on each side of the body, situated about midway between the superior and inferior median line.

The glands of *Julus* consist of a globular body or sac, with an elongated conical neck, and resemble in form a florence flask with the mouth drawn to a point. In *Julus marginatus* they measure $1\frac{1}{4}$ lines long, the body being $\frac{2}{3}$ of a line in diameter. In structure they consist of an amorphous transparent basement membrane covered upon the interior surface with a single layer of secreting cells. The cells are polygonal, from mutual pressure, measure $\frac{1}{1612}$ th inch in diameter, and are filled with a yellowish fluid, and a fine purplish granular matter, which in mass gives them a dark purple color, and which, in the aggregate of the cells, gives the glands a very deep purple or almost black color. When the cells are compressed, or the contents pressed out, the granules exhibit lively molecular movement.

In the centre of the mass of granular matter of the cell, and only seen upon compressing the latter, is a round, translucent nucleus, measuring the $\frac{1}{5000}$ th inch in diameter, and containing a minute refractive nucleolus.

The secreting cells vary in color in different insects, and in the aggregate give

the color to the glandular bodies. The reservoir also is lined with cells. In *Upis Pennsylvanica* they are brownish, or nearly colourless, measure the 1-750th inch in diameter, contain some finely granular brownish matter, and a large round or oval, translucent, faintly granular nucleus, measuring 1-1250th inch, with a large, round or oval nucleolus 1-2727th inch in diameter.

The secretion of the glands of *Julus marginatus*, contained within the interior of the body, is deep yellow in color, and contains a few of the purplish granules of the cells. It resembles oil in consistence, but is soluble in water and alcohol. It is neither acid or alkaline, evaporates at a temperature of 250° F., without residue; is acrid to the tongue, Schneiderian membrane, and conjunctiva, smells like iodohydric acid, and stains the cuticle brown. The last two properties led me to suspect the existence of iodine, but the usual reagents presented none. It probably belongs to a class of peculiar organic compounds, found in the odoriferous principles of animals, not yet investigated.

Exteriorly the reservoirs of the odoriferous glands of insects are furnished with transverse muscular bands, of a brownish color, about 1-1578th inch in breadth, and separated by wide intervals.

In *Julus*, the body of the glands possesses no distinct muscular bands, but the neck is provided with them.

References to the plate.

Fig. 1. Represents one of the odoriferous glands of *Julus marginatus*, much magnified, exhibiting the secreting cells on the interior surface of the body, and the muscular bands of the neck.

Fig. 2. Represents some of the secreting cells, highly magnified. *a.* cells in which the nucleus is concealed from the quantity of granular matter; *b.* nucleus; *c.* cells in outline.

Fig. 3. Three secreting cells very highly magnified. *a.* nucleus concealed by granular contents; *b.* a cell burst with a portion of the contents escaping.

October 30th.

DR. BRIDGES in the Chair.

The Committee on Mr. Cassin's descriptions of new species of *Caprimulgidæ*, reported in favor of publication in the Proceedings.

Descriptions of new species of birds of the Family Caprimulgidæ, specimens of which are in the Collection of the Academy of Natural Sciences of Philadelphia.

BY JOHN CASSIN.

Genus *HYDROPSALIS*, Wagler, Isis 1832, page 1222.

1. *Hydropsalis limbatus*, nobis.

Adult ♂. ? *Form.* Wings long, pointed, with the shafts of the primaries strong and slightly curved; first primary longest, second and third deeply sinuated on their outer webs, and, with the first, having their external margins distinctly serrated. Tail excessively long, graduated, the two external feathers surpassing the next by about 14 inches; others regularly receding to the two in the middle; which are shortest. Tarsi feathered slightly below the knee. Webs of outer tail feathers narrow.